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Josephson current in a three-layered superconductor-ferromagnet-superconductor system with inclusion of the proximity effect and Umklapp processes at the inner boundaries

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Abstract

The Josephson effect in a three-layered superconductor-ferromagnet-superconductor symmetric system has been considered. The Josephson current has been calculated as a function of the ferromagnet thickness allowing for the Umklapp processes at inner boundaries in the framework of the proximity effect theory. The dependence of the critical temperature on the phase difference of the order parameters has been taken into account. Good agreement between the theory and experiment is attained. © 2011 Pleiades Publishing, Ltd.

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